WM-EX655/EX668

SERVICE MANUAL

Ver 1.2 2000. 03
With SUPPLEMENT 1 (9-923-312-81)

AEP Model
UK Model
WM-EX668
Tourist Model
WM-EX655

Photo : WM-EX655

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
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Model Name Using Similar Machanism	NEW
Tape Transport Mechanism Type	MT-WMEX655-125

SPECIFICATIONS

Tape Player section and general

Frequency response (◻◻ NR switch off)
30 – 18,000Hz
Output
Headphones (2 REMOTE jack)
Load impedance 8 – 300ohms
Power output
4mW + 4mW at DC operation
Power requirements
1.5V DC
Rechargeable battery (NC-6WM), 1.2V, 600mAH, Ni-Cd) One R6 (size AA) battery
Battery life (Aprrox. hours)

Rechargeable NC-6WM Fully charged	9
Sony R6P (SR)	9
Sony alkaline LR6 (WM)	36
Rechargeable NC-6WM Sony alkaline LR6 (WM) Used together	45

Dimensions
Approx. 108.9 x 80 x 21.3 mm (w/h/d)
Weight
Approx. 150g (Main unit)
Approx. 215g (incl. Headphones with remote control, Rechargeable battery NC-6WM (S), Type (C-60-HF))

Supplied Accessories

- Battery charger (1)
- Rechargeable battery (NC-6WM, 1.2V 600mAh, Ni-Cd) (1)
- Battery case (1) (WM-EX655)
- Stereo earphones with remote control (1) (WM-EX655)
- Carrying pouch (1)
- Rechargeable battery carrying case (1)
- Remote control unit (RM-WME654) (1)
- Sony battery R6P (SR) (1) (WM-EX655)
- AC plug adaptor (1) (WM-EX655)
- Clip (1) (WM-EX655)

Design and specifications are subject to change without notice.

CASSETTE PLAYER

MICROFILM

SONY®

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Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270°C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

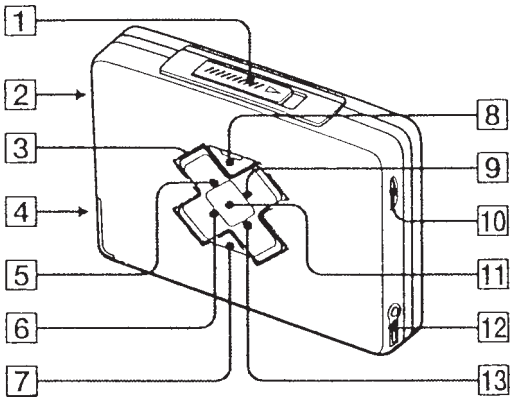
SECTION 1
GENERAL

This section is extracted from instruction manual.

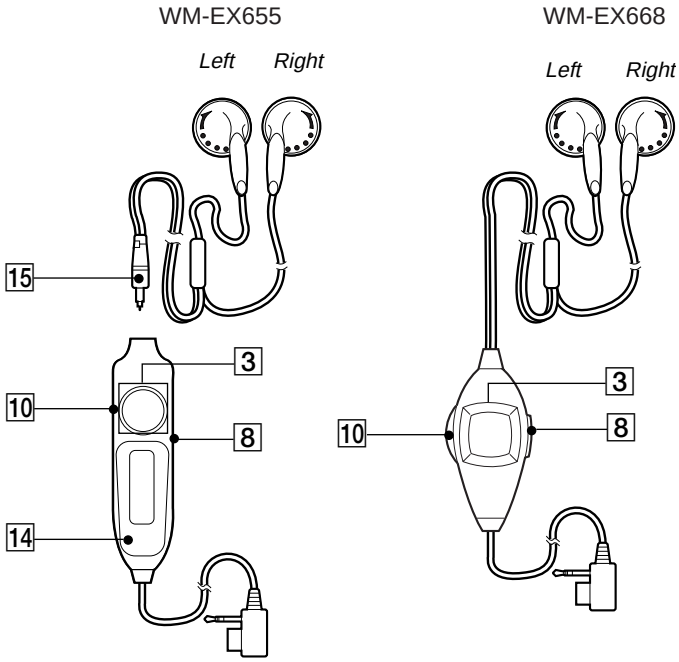
LOCATION AND FUNCTION OF CONTROLS

Tape player section and general

● **Main unit**



● **Headphones with Remote Control**



1 OPEN knob
2 Contact for dry battery case
3 Tape operation buttons
4 Rechargeable battery case
5 BL SKIP indicatior
6 AVLS indicatior
7 FUNCTION button
8 HOLD switch
9 MB/GRV (Mega Bass/Groove) indicator
10 Main unit : VOLUME knob
Remote control : VOL knob
11 BATT indicator
12 ∩ REMOTE jack
13 DD (DOLBY) NR indicator
14 SOUND/AVLS (Auto Volume limitter system) switch
15 Micro plug

SECTION 2
SERVICE NOTE

SERVICE MODE

Mode which enables the mechanism to be operated with the AUDIO board opened.

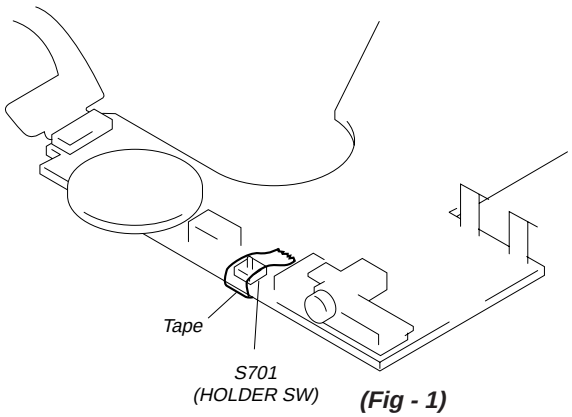
This set detects the rotation of GEAR (S) using the PH701 (photo reflector). The PH701 is mounted on the AUDIO board, and therefore the GEAR cannot be detected with the AUDIO board removed. As a result, the motor cannot be controlled, causing malfunction. Further, the S702 (FWD/REV switch) is also mounted on the AUDIO board, and with the board removed, the mechanism position cannot be detected and the operation is not changed over. Therefore, when the voltage check is executed with the AUDIO board removed, follow the procedure provided below.

Note : Do not move the S702 switch position when removing the AUDIO board.
If it is moved, the set will not be changed over to the selected mode. In this case, reconnect the AUDIO board to the set and retry the work from the beginning.

1. Setting

1) Refer to "3. DISASSEMBLY", and remove the case and open the AUDIO board.
2) Connect the AUDIO board to the M901 (motor) and PM901 (plunger) using a jumper wire. (See Fig- 2)
3) Short the ATS terminals (S901).
4) Press and fixed the S701 (HOLDER SW). (See Fig- 1)

[AUDIO board] (Side B)



(Fig - 1)

5) Supply 1.5V to the battery terminals ⊕ and ⊖ using a stabilized power supply.

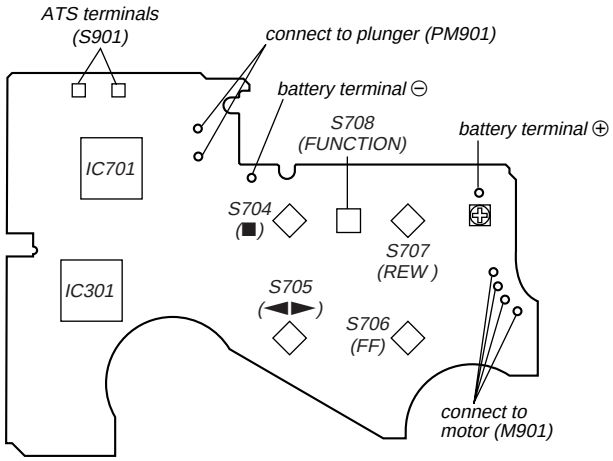
2. FF, REW Modes

1) Input a square wave to the TP35 (PHOTO IN). (See Fig-3)
2) Press the S704 (STOP) for selecting STOP mode.
3) Press the S706 (FF) or S707 (REW).

3. PLAY Mode

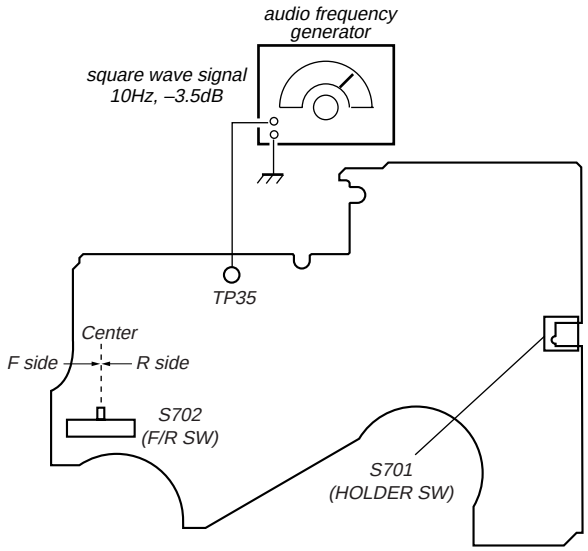
1) Input a square wave to the TP35 (PHOTO IN). (See Fig-3)
2) Press the S704 (STOP) for selecting STOP mode.
3) Press the S705 (PLAY). (Each time the switch is pressed, the mode is chaged over.)

[AUDIO board] (Side A)



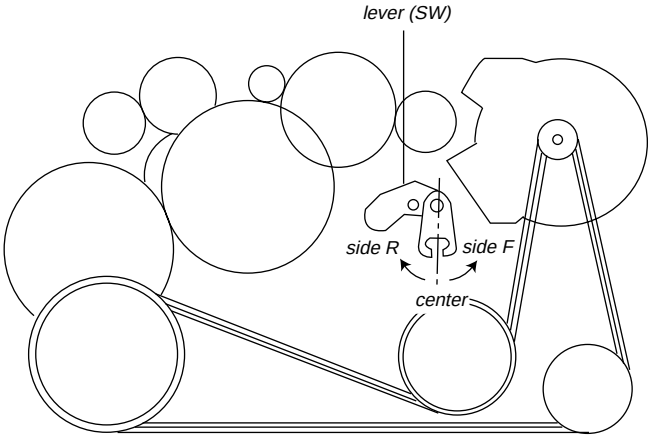
(Fig - 2)

[AUDIO board] (Side B)

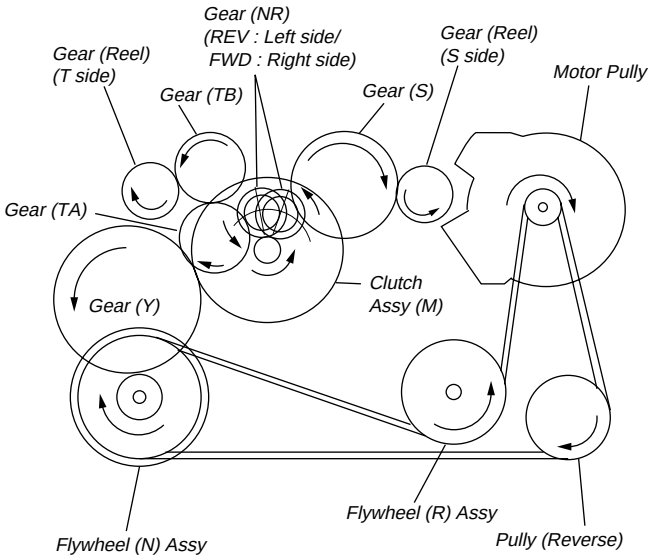


(Fig - 3)

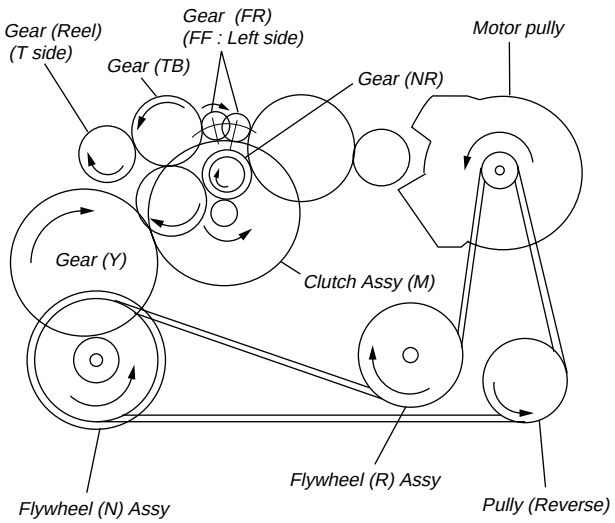
LEVER (SW)



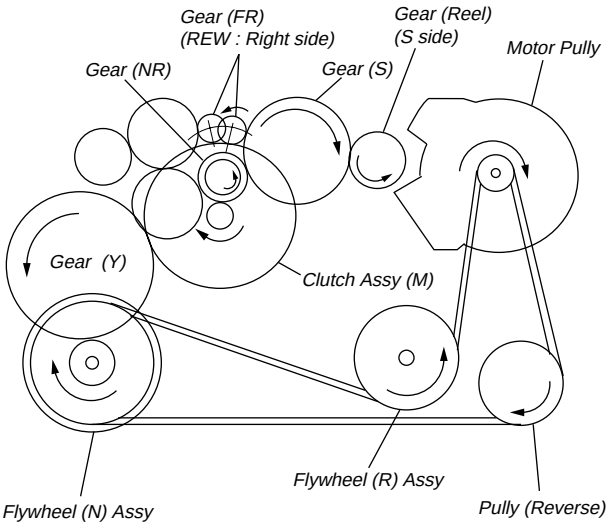
Rortation system during PLAY.



Rortation system during FF.



Rortation system during REW.



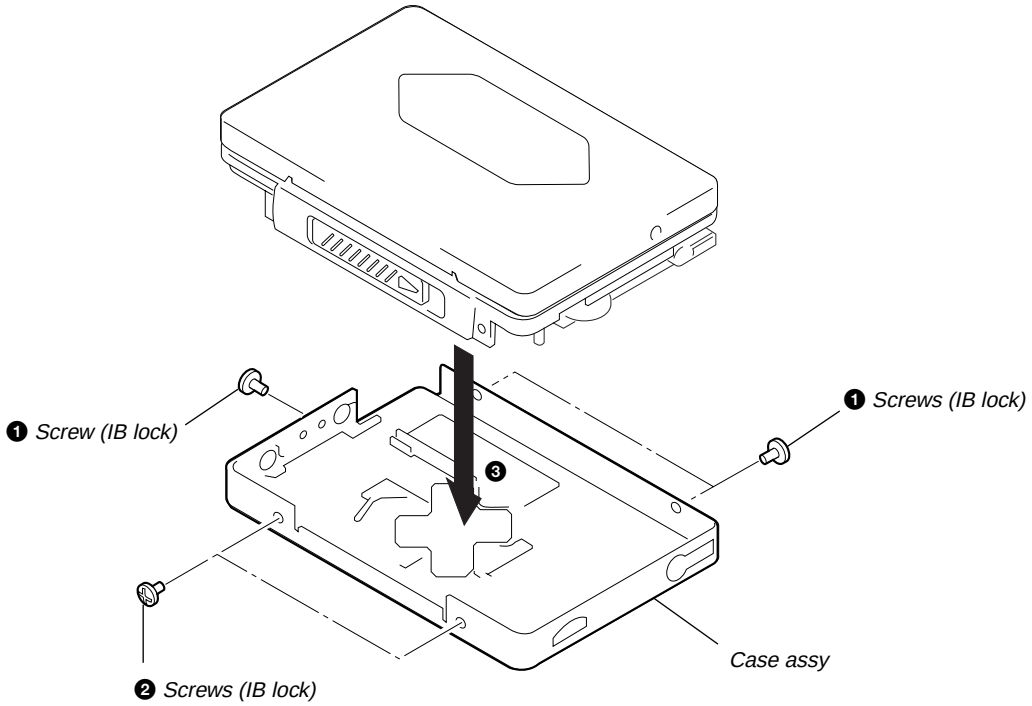
SECTION 3
DISASSEMBLY

● The equipment can be removed using the following procedure.

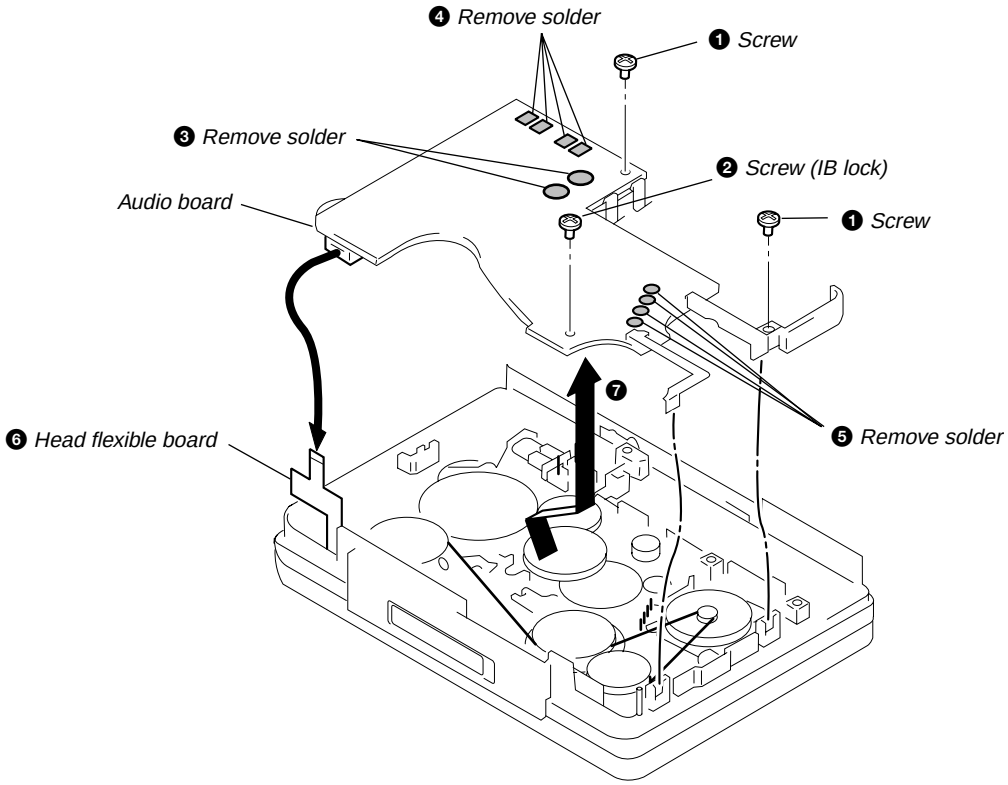
Set ⟶ Case assy ⟶ Audio board ⟶ Cassette lid assy ⟶ Mechanism deck

Note: Follow the disassembly procedure in the numerical order given.

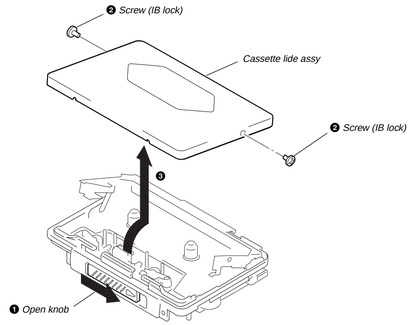
3-1. CASE ASSY REMOVAL



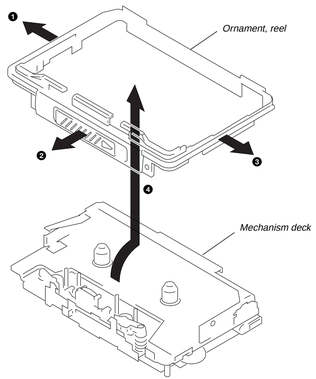
3-2. AUDIO BOARD REMOVAL



3-3. CASSETTE LID ASSY REMOVAL



3-4. MECHANISM DECK REMOVAL



SECTION 4
ADJUSTMENTS

4-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Before adjusting, clean the following parts with a piece of cotton moistened with alcohol.
   playback head — pinch roller
   rubber belt — capstan
2. Demagnetize the playback head using a head demagnetizer.
3. Do not use a magnetized screwdriver for adjustments.
4. After adjusting, apply screw-locking compound to the adjusted parts.
5. Unless specified otherwise, use a specified voltage (1.3V) to perform the adjustments.

Torque Measurement

Torque	Torque Meter	Meter Reading
FWD	CQ-102C	16 to 30 g • cm (0.23 to 0.41 oz• inch)
FWD back tension		0.7 to 2.0 g • cm (0.01 to 0.027 oz• inch)
REV	CQ-102RC	16 to 30 g • cm (0.23 to 0.41 oz• inch)
REV back tension		0.7 to 2.0 g • cm (0.01 to 0.027 oz• inch)
FF	CQ-201B	more than 40g • cm (more than 0.56 oz• inch)
REW		

4-2. ELECTRICAL ADJUSTMENTS

PRECAUTION

1. Specified voltage : 1.3V.
2. Mode setting
   DOLBY NR : OFF
   SOUND switch : NORM
   AVLS : OFF

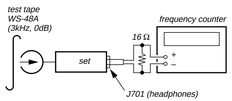
CASSETTE SECTION

Test Tape

Type	Signal	Used for
WS-48A	3kHz, 0dB	Tape Speed Adjustment

0dB = 0.775V

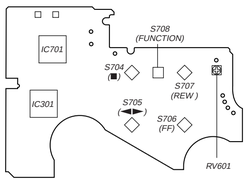
Tape Speed Adjustment
Procedure :



1. Play back WS-48A (tape center part) in the FWD state and adjust RV601 so that the frequency counter reading becomes 3,000 ± 30Hz.
2. Play back WS-48A (tape center) in the REV state.
   Check that the frequency counter reading is within 1.5% of the reading of step 1.

Adjustment Point :

[AUDIO BOARD] – Side A –



SECTION 5
DIAGRAMS

5-1. EXPLANATION OF IC TERMINALS

IC701 MSM6576-90GS-K (SYSTEM CONTROL)

Pin No.	Pin name	I/O	Description
1	M.CTL	O	Motor control output.
2	M.DIR	O	Motor rotating direction output.
3	M.BRK	O	Motor brake control output.
4	RESET	I	Reset terminal. "H" : Reset
5	TEST1	–	Not used (Connect to ground).
6	TEST2	–	Not used (Connect to ground).
7	TEST3	–	Not used (Connect to ground).
8	L.DOLBY	O	Dolby LED control output.
9	L.AVLS	O	AVLS LED control output.
10	L.BATT	O	BATT LED control output.
11	L.BLSKIP	O	BL SKIP LED control output.
12	MUTE CTL	O	Audio mute control output.
13	PM CTL	O	Plunger control output.
14	PHOTO CTL	O	Rotation detect control output.
15	XTB	O	Crystal oscillator connect terminal (32.768kHz).
16	XT	I	Crystal oscillator connect terminal (32.768kHz).
17	VDD	–	Power supply (+1.5V).
18	VSS1	–	Power supply (Ground).
19	VCM	–	Internal power supply STEP-UP terminal.
20	VCP	–	Internal power supply STEP-UP terminal.
21	VSS2	–	Internal power supply STEP-UP terminal.
22	VEE	–	Internal power supply STEP-UP terminal.
23	SET STOP1	I	Power failure detect input.
24	SET STOP2	I	Power failure detect input.
25	KEY IN	I	Key input.
26	HOLDER SW	I	Holder switch input. "H" : Close
27	BEEP	O	Beep signal output.
28	AMS IN	I	Recording sound detection input.
29	RMUM	I	Remote control data request.
30	DATA	I	Remote control data input.
31	DOLBY CTL	O	Dolby control signal output.
32	DDC CTL	O	DC-DC converter control output.
33	F/R CTL	O	FWD/REV select signal output. "H" : FWD
34	L.MB	O	MEGA BASS LED control output.
35	L.GRV	O	GROOVE LED control output.
36	FWD SW	I	F/R switch input.
37	REV SW	I	F/R switch input.
38	PHOTO IN	I	Rotation detect input.
39	VDD	–	Power supply (+1.5V).
40	BOOST CTL	O	MEGA BASS ON/OFF control output.

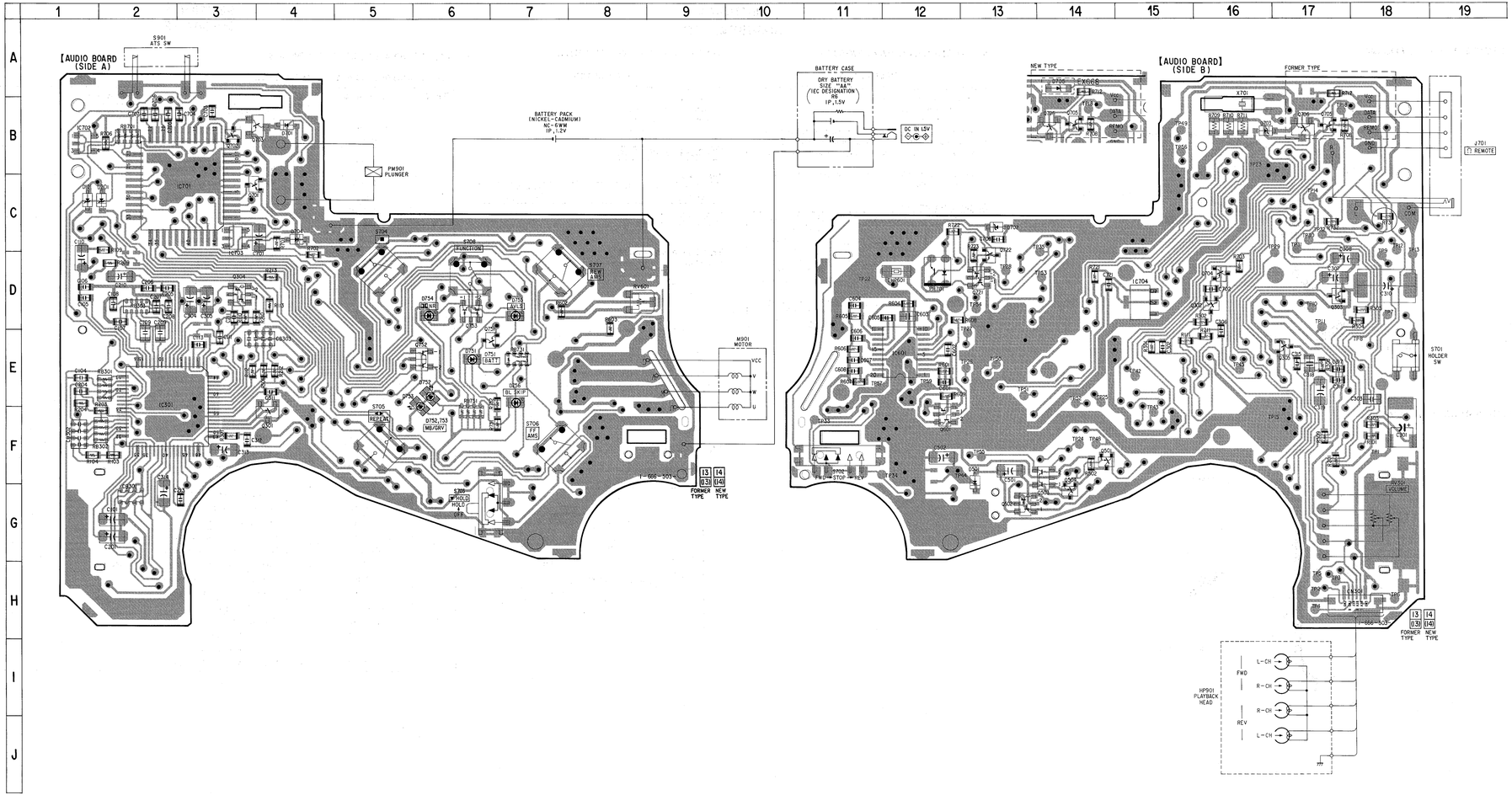
Pin No.	Pin name	I/O	Description
41	MB/GRV CTL	O	MEGA BASS /GROOVE select control output.
42	LOAD CTL	O	Battery check load control output.
43	AVLS CTL	O	AVLS ON/OFF control output.
44	AMP CTL	O	Amplifier ON/OFF control output.

● SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D101	C-1	Q301	F-4
D201	C-1	Q302	D-16
D501	F-13	Q303	D-17
D701	B-4	Q304	D-3
D702	C-13	Q305	E-17
D703	B-16	Q501	F-14
D704	C-4	Q502	G-13
D705	A-14	Q503	G-14
D751	E-6	Q504	G-14
D752	E-6	Q601	F-12
D753	F-6	Q701	C-3
D754	D-6	Q702	B-3
D755	D-7	Q703	B-3
D756	E-7	Q704	D-16
		Q705	B-17
IC301	E-2	Q706	B-17
IC601	E-12	Q721	D-13
IC701	C-3	Q722	D-13
IC702	B-1	Q751	E-6
IC703	C-3	Q752	E-6
IC704	D-15	Q753	D-6
PH701	D-12		

Note:
- ○—— : parts extracted from the component side.
- ● : Through hole.
- ▒▒ : Pattern from the side which enables seeing.

5-2. PRINTED WIRING BOARDS



【AUDIO BOARD】

【HEAD FLEXIBLE BOARD】

IC301 AUDIO MASTER AMP TC9179F

IC702 VOLTAGE DETECT

IC704 REG

IC701 SYSTEM CONTROL M30620FP

IC703 VOLTAGE DETECT

IC601 MOTOR SERVO

● WAVEFORM

①

32.768kHz

250mVp-p

IC701 ⑮ XTB

VOLT/DIV : 50mV AC

TIME/DIV : 10μsec

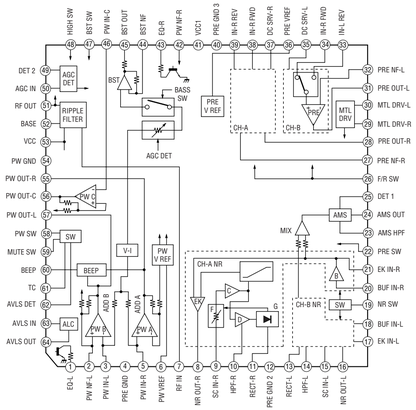
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- B+ : B+ Line.
- : adjustment for repair.
- Power voltage is dc 1.5 V and fed with regulated dc power supply from battery terminal.
- Voltages and waveforms are dc with respect to ground in playback mode.
  no mark : PLAY
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  : PB

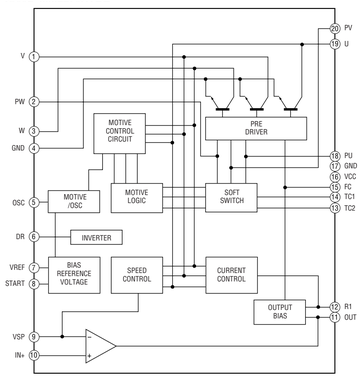
SECTION 6
EXPLODED VIEWS

● IC BLOCK DIAGRAMS

IC301 TA2103F



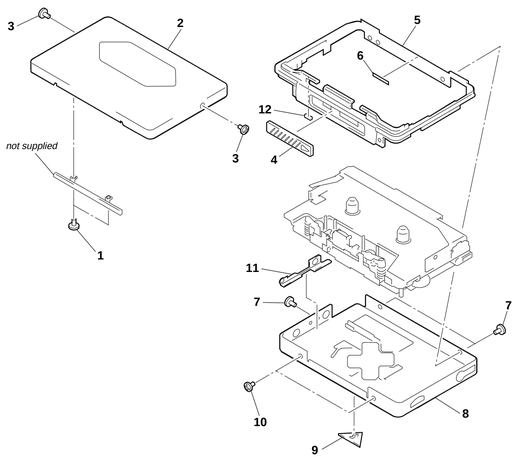
IC601 MM1279XVBE



NOTE :

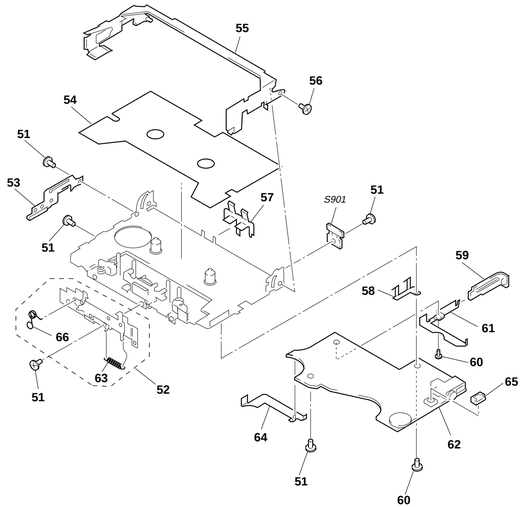
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Color indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE) ••• (RED)
  ↑ Parts color ↑ Cabinet's color
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Abbreviation
  FR : French
- Accessories and packing materials are given in the last of this parts list.

6-1. CASE SECTION



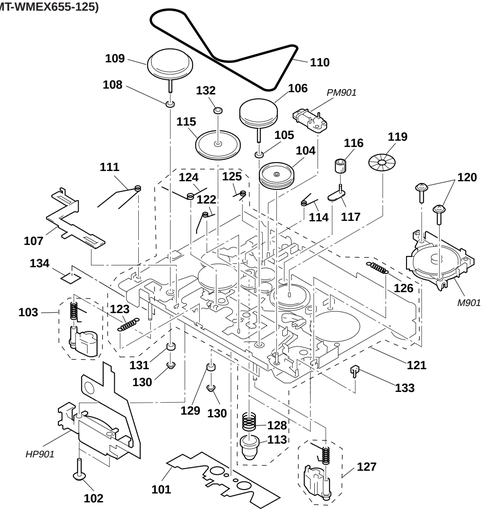
Ref. No.	Part No.	Description	Remark
1	3-375-114-61	SCREW	
2	X-3374-606-1	CASSET LID ASSY (BLACK) (EX655)	
2	X-3374-607-1	CASSET LID ASSY (SILVER) (EX655)	
2	X-3374-608-1	CASSET LID ASSY (BLUE) (EX655)	
2	X-3374-609-1	CASSET LID ASSY (ORANGE) (EX655)	
2	X-3375-608-1	CASSET LID ASSY (BLACK) (EX668)	
2	X-3375-609-1	CASSET LID ASSY (SILVER (EX668)	
2	X-3375-610-1	CASSET LID ASSY (BLUE) (EX668)	
2	X-3375-611-1	CASSET LID ASSY (ORANGE) (EX668)	
3	3-704-197-91	SCREW (IB LOCK)•••(SILVER,BLUE,ORANGE)	
3	3-939-590-13	SCREW (IB LOCK)•••(BLACK)	
4	3-015-913-01	KNOB (OPEN)	
5	3-015-912-11	ORNAMENT, REEL	
6	3-020-859-01	SPACER (RI)	
7	3-939-590-18	SCREW (IB LOCK)•••(SILVER,BLUE,ORANGE)	
7	3-939-590-19	SCREW (IB LOCK)•••(BLACK)	
8	X-3374-610-1	CASE ASSY (BLACK)	
8	X-3374-611-1	CASE ASSY (SILVER)	
8	X-3374-612-1	CASE ASSY (BLUE)	
8	X-3374-613-1	CASE ASSY (ORANGE)	
9	3-015-922-01	KNOB (HOLD)(BLACK)	
9	3-015-922-11	KNOB (HOLD) (SILVER)	
9	3-015-922-21	KNOB (HOLD) (BLUE)	
9	3-015-922-31	KNOB (HOLD) (ORANGE)	
10	3-389-523-35	SCREW (IB LOCK)•••(SILVER,BLUE,ORANGE)	
10	3-389-523-36	SCREW (IB LOCK)•••(BLACK)	
11	3-015-924-01	PLATE, ORNAMENTAL	
12	3-021-423-01	CUSHION (PI) (WM-EX655)	

6-2. AUDIO BOARD SECTION



Ref. No.	Part No.	Description	Remark
51	3-704-197-01	SCREW (IB LOCK)	
52	X-3374-062-1	BRACKET ASSY	
53	3-016-085-01	BRACKET (C)	
54	3-009-662-32	COVER (A), MD (WM-EX668)	
54	3-009-662-21	COVER (A), MD (WM-EX655)	
55	X-3374-063-1	HOLDER ASSY, CASSETTE	
56	3-366-890-01	SCREW (M1.4)	
57	3-928-465-01	DETENT, CASSETTE	
58	3-007-282-01	TERMINAL BOARD (MINUS),BATTERY	
59	3-015-926-01	LID, BATTERY CASE (BLACK)	
59	3-015-926-11	LID, BATTERY CASE (SILVER)	
59	3-015-926-21	LID, BATTERY CASE (BLUE)	
59	3-015-926-31	LID, BATTERY CASE (ORANGE)	
60	3-375-114-71	SCREW	
61	X-3374-330-1	TERMINAL BOARD ASSY (K)	
62	A-3061-556-A	AUDIO BOARD, COMPLETE (EX655)	
62	A-3061-693-A	AUDIO BOARD, COMPLETE (EX668 : FR)	
62	A-3021-130-A	AUDIO BOARD, COMPLETE (EX668 : EXCEPT FR)	
63	3-019-232-01	SPRING, TENSION	
64	3-015-925-01	TERMINAL BOARD	
65	3-016-087-02	COVER (SW)	
66	3-018-159-01	SPRING, TORSION	
S901	1-762-582-11	SWITCH, LEAF (ATS)	
101	3-011-277-01	COVER (B) (Y), MD	

6-3. MECHANISM DECK SECTION (MT-WMEX655-125)



Ref. No.	Part No.	Description	Remark
102	3-704-413-31	SCREW (M1.4X7.2)	
103	X-3372-850-1	PINCH LEVER (N) ASSY	
104	3-007-434-01	PULLEY (REVERSE)	
105	3-007-428-01	WASHER (R)	
106	X-3372-851-1	FLYWHEEL (R) ASSY	
107	3-007-439-01	SLIDER (LOCK)	
108	3-386-694-11	WASHER	
109	X-3372-852-1	FLYWHEEL (N) ASSY	
110	3-007-430-01	BELT	
111	3-007-960-01	SPRING (EJECT) (Y), TORSION	
113	3-010-274-02	TABLE, REEL	
114	3-007-436-01	SPRING (TRIGGER), TORSION	
115	X-3372-848-1	CLUTCH ASSY (M)	
116	3-007-435-01	GEAR (FR)	
117	X-3372-853-1	LEVER (FRG) ASSY	
119	3-007-432-01	SHEET (R), REFLECTION	
120	3-007-427-01	SCREW (IB LOCK)	
121	X-3374-094-1	CHASSIS (S) ASSY (Y)	
122	3-007-455-01	SPRING (R), TORSION	
123	3-007-458-01	SPRING (H/B), TENSION	
124	3-007-456-01	SPRING (N), TORSION	
125	3-007-454-01	SPRING (FR), TORSION	
126	3-007-457-01	SPRING (TEN), TENSION	
127	X-3372-849-1	PINCH LEVER (R) ASSY	
128	3-010-954-01	SPRING (BT), COMPRESSION	
129	3-918-943-01	WASHER, STOPPER	
130	3-366-017-01	BUSHING (CAPSTAN)	
131	3-007-429-01	WASHER (R), STOPPER	
132	3-932-724-21	WASHER	
* 133	3-010-272-01	BELT, RETAINER	
134	3-569-706-01	SPACER, CASSETTE LID	
HP901	1-500-280-11	HEAD, MAGNETIC (PLAYBACK)	
M901	1-698-885-11	MOTOR	
PM901	1-454-674-31	SOLENOID, PLUNGER	

SECTION 7
ELECTRICAL PARTS LIST

AUDIO

NOTE :

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE :Metal oxide-film resistor
  F : nonflammable
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : m , for example :
  uA.... : m A.... , uPA.... : m PA....
  uPB.... : m PB.... , uPC.... : m PC....
  uPD.... : m PD....
- CAPACITORS
  uF : m F
- COILS
  uH : m H
- Abbreviation
  FR : French
  JEW : Tourist

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
	A-3061-556-A	AUDIO BOARD, COMPLETE (EX655)			
	A-3061-693-A	AUDIO BOARD, COMPLETE (EX668 : FR)			
	A-3021-130-A	AUDIO BOARD, COMPLETE (EX668 : EXCEPT FR)			
		**********			
		< CAPACITOR >			
C101	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C104	1-115-156-11	CERAMIC CHIP	1uF		10V
C105	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C106	1-164-174-11	CERAMIC CHIP	0.0082uF	10%	25V
C107	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C108	1-115-156-11	CERAMIC CHIP	1uF		10V
C109	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C110	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C111	1-115-156-11	CERAMIC CHIP	1uF		10V
C113	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C201	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C204	1-115-156-11	CERAMIC CHIP	1uF		10V
C205	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C206	1-164-174-11	CERAMIC CHIP	0.0082uF	10%	25V
C207	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C208	1-115-156-11	CERAMIC CHIP	1uF		10V
C209	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C210	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C211	1-115-156-11	CERAMIC CHIP	1uF		10V
C213	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C301	1-128-015-11	SOLID CHIP	22uF	20%	4V
C302	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C303	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C304	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C305	1-135-316-11	TANTAL. CHIP	22uF	20%	2.5V
C306	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C307	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C308	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C310	1-117-578-11	TANTAL. CHIP	470uF	20%	2.5V
C311	1-115-156-11	CERAMIC CHIP	1uF		10V
C312	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C313	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C314	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C315	1-115-156-11	CERAMIC CHIP	1uF		10V
C316	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C317	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C318	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C319	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C501	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C502	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C601	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C602	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C603	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C604	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C605	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C606	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C607	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C608	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C701	1-135-151-21	TANTALUM CHIP	4.7uF	20%	4V
C702	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C703	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C704	1-115-156-11	CERAMIC CHIP	1uF		10V
C705	1-115-156-11	CERAMIC CHIP	1uF		10V
C706	1-115-156-11	CERAMIC CHIP	1uF		10V
C707	1-115-156-11	CERAMIC CHIP	1uF		10V
C708	1-115-156-11	CERAMIC CHIP	1uF		10V
C721	1-164-156-11	CERAMIC CHIP	0.1uF		25V
CB301	1-117-968-11	CERAMIC CHIP (ARRAY)		680P	
CB302	1-125-786-11	CERAMIC CHIP (ARRAY)			
CB303	1-125-785-11	CERAMIC CHIP (ARRAY)			
		< CONNECTOR >			
CN301	1-766-336-21	CONNECTOR, FFC/FPC 6P			
		< DIODE >			
D101	8-719-423-35	DIODE MA8120-H			
D201	8-719-423-35	DIODE MA8120-H			
D501	8-719-049-09	DIODE 1SS367-T3SONY			
D701	8-719-404-49	DIODE MA111			
D702	8-719-423-35	DIODE MA8120-H			
D703	8-719-423-35	DIODE MA8120-H			
D704	8-719-049-09	DIODE 1SS367-T3SONY			
D705	8-719-423-35	DIODE MA8120-H (EX668)			
D751	8-719-051-01	LED CL-170HR-CD-T (BATT)			
D752	8-719-051-01	LED CL-170HR-CD-T (MB)			
D753	8-719-051-01	LED CL-170HR-CD-T (GRV)			
D754	8-719-051-01	LED CL-170HR-CD-T (□□ NR)			
D755	8-719-051-01	LED CL-170HR-CD-T (AVLS)			

AUDIO

Ref. No.	Part No.	Description	Remark
D756	8-719-051-01	LED CL-170HR-CD-T (BL SKIP)	
		< IC >	
IC301	8-759-440-52	IC TA2103F	
IC601	8-759-356-46	IC MM1279XVBE	
IC701	8-759-479-05	IC MSM6576-90GS-K	
IC702	8-759-280-85	IC PST9010NL	
IC703	8-759-430-08	IC PST9008NL	
IC704	8-759-469-63	IC S-81215SGUP-DQK-T1	
		< JACK >	
J701	1-779-867-41	JACK (🎧 REMOTE)	
		< PHOTO INTERRUPTER >	
PH701	8-719-988-15	PHTO REFLECTOR PR-11-C	
		< TRANSISTOR >	
Q301	8-729-230-72	TRANSISTOR 2SA1362YG	
Q302	8-729-420-50	TRANSISTOR UN5215	
Q303	8-729-420-50	TRANSISTOR UN5215	
Q304	8-729-422-39	TRANSISTOR XN4404	
Q305	8-729-420-50	TRANSISTOR UN5215	
Q501	8-729-420-24	TRANSISTOR 2SB1218A-QRS	
Q502	8-729-115-28	TRANSISTOR BN1L3Z-K	
Q503	8-729-403-17	TRANSISTOR XN1215	
Q504	8-729-030-54	TRANSISTOR MSB1218A-RT1	
Q601	8-729-402-84	TRANSISTOR XN4601	
Q701	8-729-422-51	TRANSISTOR UN5110-QRS	
Q702	8-729-421-29	TRANSISTOR UN5216R	
Q703	8-729-230-72	TRANSISTOR 2SA1362YG	
Q704	8-729-030-54	TRANSISTOR MSB1218A-RT1	
Q705	8-729-421-29	TRANSISTOR UN5216R	
Q706	8-729-230-72	TRANSISTOR 2SA1362YG	
Q721	8-729-422-18	TRANSISTOR XN4315	
Q722	8-729-030-53	TRANSISTOR MSD1819A-RT1	
Q751	8-729-421-77	TRANSISTOR UN5210-R-TX	
Q752	8-729-022-66	TRANSISTOR XN1210-TX	
Q753	8-729-022-66	TRANSISTOR XN1210-TX	
		< RESISTOR >	
R101	1-216-812-11	METAL CHIP 180 5% 1/16W	
R103	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R104	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R109	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R110	1-216-809-11	METAL CHIP 100 5% 1/16W	
R111	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R112	1-216-793-11	METAL GLAZE 4.7 5% 1/16W	
R113	1-216-805-11	METAL CHIP 47 5% 1/16W	(FR)
R113	1-216-864-11	METAL CHIP 0	(EXCEPT FR)
R201	1-216-812-11	METAL CHIP 180 5% 1/16W	
R203	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R204	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R209	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R210	1-216-809-11	METAL CHIP 100 5% 1/16W	
R211	1-216-844-11	METAL CHIP 82K 5% 1/16W	
R212	1-216-793-11	METAL GLAZE 4.7 5% 1/16W	

Ref. No.	Part No.	Description	Remark
R213	1-216-805-11	METAL CHIP 47 5% 1/16W	(FR)
R213	1-216-864-11	METAL CHIP 0	(EXCEPT FR)
R301	1-218-891-11	METAL GLAZE 68K 0.50% 1/16W	
R302	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R303	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R304	1-218-295-11	METAL GLAZE 43K 5% 1/16W	
R305	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R306	1-216-793-11	METAL GLAZE 4.7 5% 1/16W	
R307	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R308	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R309	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R502	1-216-833-11	METAL CHIP 10K 5% 1/16W	
R601	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R602	1-216-817-11	METAL CHIP 470 5% 1/16W	
R603	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R604	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R605	1-216-809-11	METAL CHIP 100 5% 1/16W	
R606	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R607	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R608	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R609	1-216-809-11	METAL CHIP 100 5% 1/16W	
R701	1-216-813-11	METAL CHIP 220 5% 1/16W	
R702	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R703	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R706	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R708	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R709	1-216-001-00	METAL CHIP 10 5% 1/10W	
R710	1-216-001-00	METAL CHIP 10 5% 1/10W	
R711	1-216-001-00	METAL CHIP 10 5% 1/10W	
R712	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R721	1-216-815-11	METAL CHIP 330 5% 1/16W	
R722	1-216-847-11	METAL CHIP 150K 5% 1/16W	
R723	1-216-849-11	METAL CHIP 220K 5% 1/16W	
R731	1-218-870-11	METAL GLAZE 9.1K 0.50% 1/16W	
R732	1-218-836-11	METAL GLAZE 360 0.50% 1/16W	
R751	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R752	1-216-837-11	METAL CHIP 22K 5% 1/16W	
		< COMPOSITION CIRCUIT BLOCK >	
RB301	1-233-872-21	RES, NETWORK (CHIP TYPE) 33K	
RB302	1-234-085-11	RES, NETWORK	
RB303	1-234-086-11	RES, NETWORK	
RB701	1-233-873-21	RES, NETWORK	
RB731	1-233-941-21	RES, NETWORK	
RB751	1-233-414-11	RES, CHIP NETWORK 4.7K	
		< VARIABLE RESISTOR >	
RV301	1-225-502-11	RES, VAR, CARBON 10K/10K (VOLUME)	
RV601	1-223-576-11	RES, ADJ, METAL GLAZE 2.2K (TAPE SPEED)	
		< SWITCH >	
S701	1-762-498-21	SWITCH, PUSH (1 KEY) (HOLDER)	
S702	1-572-581-11	SWITCH, SLIDE (FWD/STOP/REV)	
S703	1-762-078-11	SWITCH, SLIDE (▼ HOLD)	
S704	1-771-053-21	SWITCH, KEY BOARD (■)	
S705	1-771-053-21	SWITCH, KEY BOARD (◄►REPEAT)	
S706	1-771-053-21	SWITCH, KEY BOARD (FF AMS)	

Ref. No.	Part No.	Description	Remark
S707	1-771-053-21	SWITCH, KEY BOARD (REW AMS)	
S708	1-771-053-21	SWITCH, KEY BOARD (FUNCTION)	
		< THERMISTOR >	
THP601	1-810-794-11	THERMISTOR, POSITIVE	
		< VIBRATOR >	
X701	1-579-616-11	VIBRATOR, CRYSTAL (32.768kHz)	

****

MISCELLANEOUS
****

HP901	1-500-280-11	HEAD, MAGNETIC (PLAYBACK)	
M901	1-698-885-11	MOTOR	
PM901	1-454-674-31	SOLENOID, PLUNGER	
S901	1-762-582-11	SWITCH, LEAF (ATS)	

****

ACCESSORIES & PACKING MATERIALS
****

	1-475-181-11	REMOTE CONTROL UNIT(RM-WME654)	
⚠	1-528-252-21	BATTERY CHARGER (BC-7S) (UK)	
	1-528-543-22	BATTERY, NI-CD (NC-6WM)	
⚠	1-528-580-21	BATTERY CHARGER (BC-7HT) (JEW)	
⚠	1-528-744-11	BATTERY CHARGER (BC-7DY) (AEP, FR)	
⚠	1-569-007-11	ADAPTOR,CONVERSION 2P (JEW)	
	1-759-213-21	CASE, BATTERY (WM-EX655)	
	3-008-521-01	CASE, BATTERY CHARGE	
	3-021-018-01	LABEL, FRANCE (French)	
	3-021-018-11	LABEL, FRANCE (French)	
	3-861-030-01	MANUAL, INSTRUCTION (JAPANESE, ENGLISH, KOREAN) (JEW)	
	3-861-030-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, RUSSIAN) (AEP, UK, FR)	
	3-861-030-21	MANUAL, INSTRUCTION (SPANISH, GERMAN, ITALIAN) (AEP)	
	3-861-030-31	MANUAL, INSTRUCTION (DUTCH, SWEDISH, PORTUGUESE) (AEP)	
	3-918-892-01	CASE, CARRYING	
	3-920-201-01	CLIP (JEW)	
	8-953-219-90	HEADPHONE MDR-ED132MP//K SET (WM-EX655)	
	1-505-441-11	HEADPHONE MDR-WME633 (WM-EX668)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

9-923-312-11

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Personal A&V Products Company

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WM-EX655/EX668

SONY

SERVICE MANUAL

1998. 10

AEP Model
UK Model
WM-EX668
Tourist Model
WM-EX655

SUPPLEMENT - 1

File this Supplement with the Service Manual.

Subject :

- **NO INTERCHANGEABILITY OF MOTORS DUE TO CHANGE OF MECHANISM DECK**
- **CAUTION WHEN INSTALLING A NEW MOTOR**
- **CHANGED PARTS LIST**

(SPM-98008)

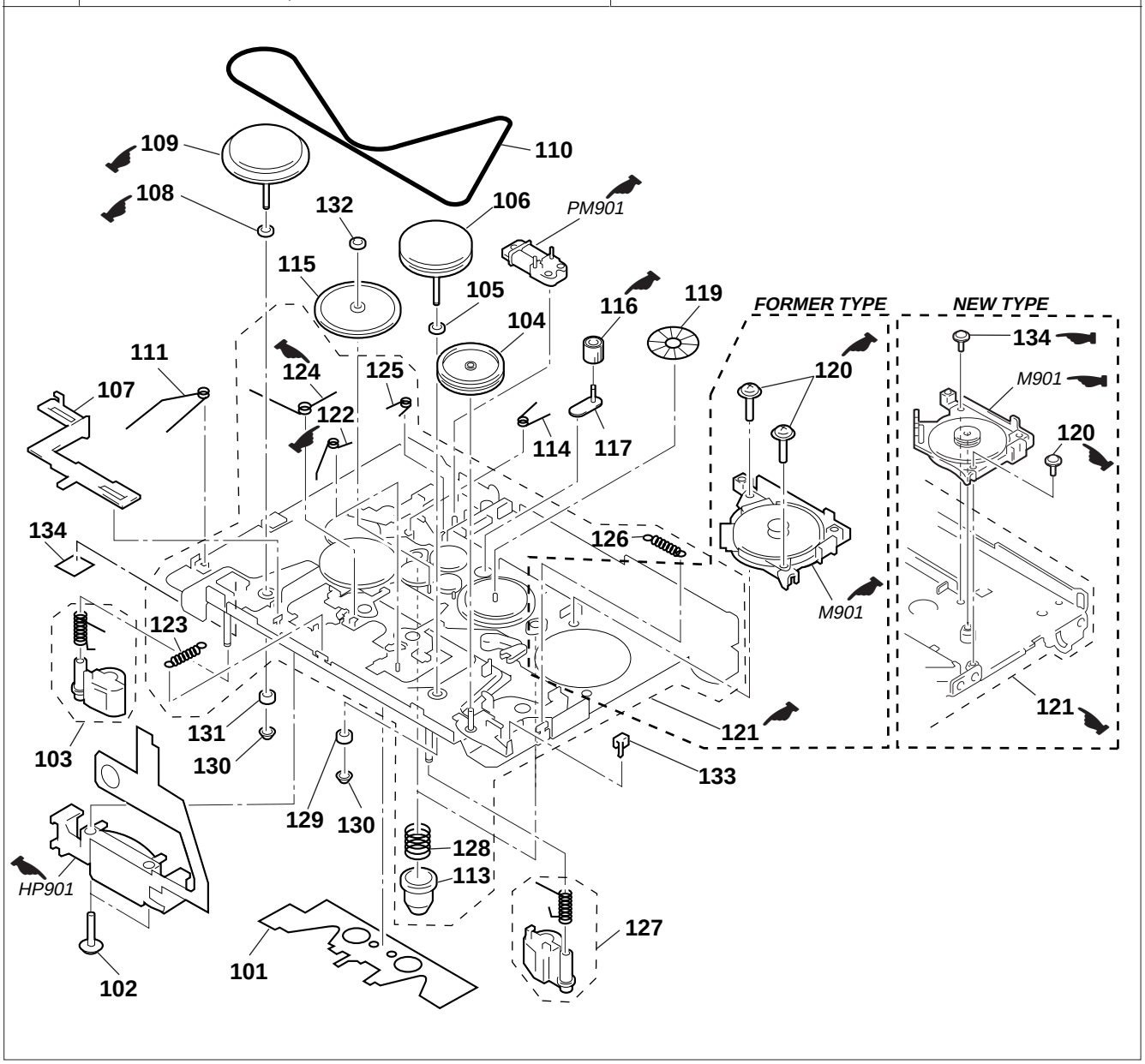
● **NO INTERCHANGEABILITY OF MOTORS DUE TO CHANGE OF MECHANISM DECK**

MECHANISM DECK SECTION (Service Manual See page 22)

(MT-WMEX655-125)

☛ : Changed portion

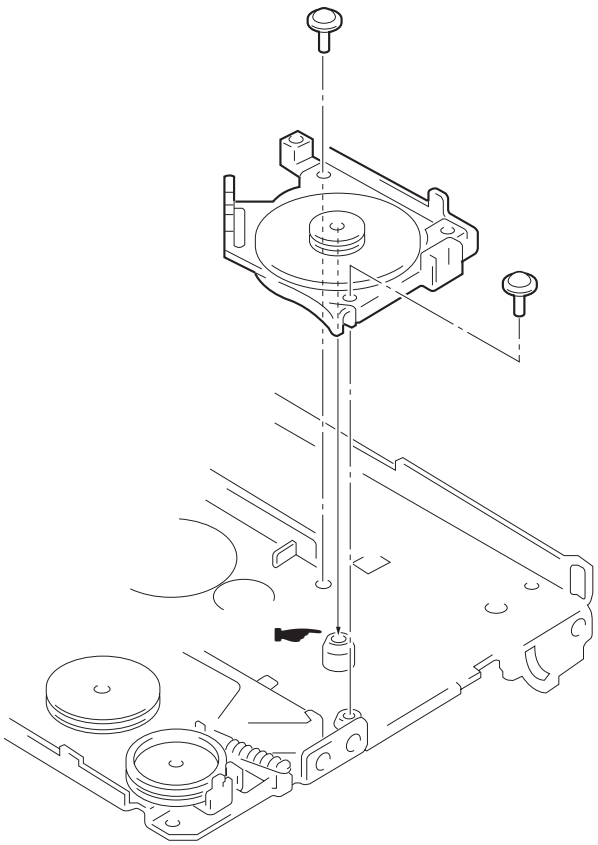
	Former Type			New Type		
Ref. No	Part No.	Description	Remark	Part No.	Description	Remark
108	3-386-694-11	WASHER		3-386-694-21	WASHER	
109	X-3372-852-1	FLYWHEEL (N) ASSY		X-3372-852-4	FLYWHEEL (N) ASSY	
116	3-007-435-01	GEAR (FR)		3-016-696-01	GEAR (FRN)	
120	3-007-427-01	SCREW (IB LOCK)		3-335-797-01	SCREW (M1.4 x 2), TOOTHED LOCK	
121	X-3374-094-1	CHASSIS (S) ASSY (Y)		X-3374-420-1	CHASSIS (S) ASSY (M)	
122	3-007-455-01	SPRING (R), TORSION		3-019-710-01	SPRING (R), TORSION	
124	3-007-456-01	SPRING (N), TORSION		3-019-709-01	SPRING (N), TORSION	
134		————		3-335-797-21	SCREW (M1.4 x 3), TOOTHED LOCK	
HP901	1-500-280-11	HEAD, MAGNETIC (PLAYBACK)		1-500-537-11	HEAD, MAGNETIC (PLAYBACK)	
M901	1-698-885-11	MOTOR		X-3376-217-1	MOTOR ASSY	
PM901	1-454-674-31	SOLENOID, PLUNGER		1-454-674-32	SOLENOID, PLUNGER	



Caution : Since the new motor (M901) and chassis (S) ASSY are not compatible with the former ones, when replacing either of these parts, replace them with the same version.

● CAUTION WHEN INSTALLING A NEW MOTOR

Always give a drop of Diamond Oil NT68 (7-661-018-18) to the hole of the shaft marked with ☛ when installing a new motor (X-3376-217-1).

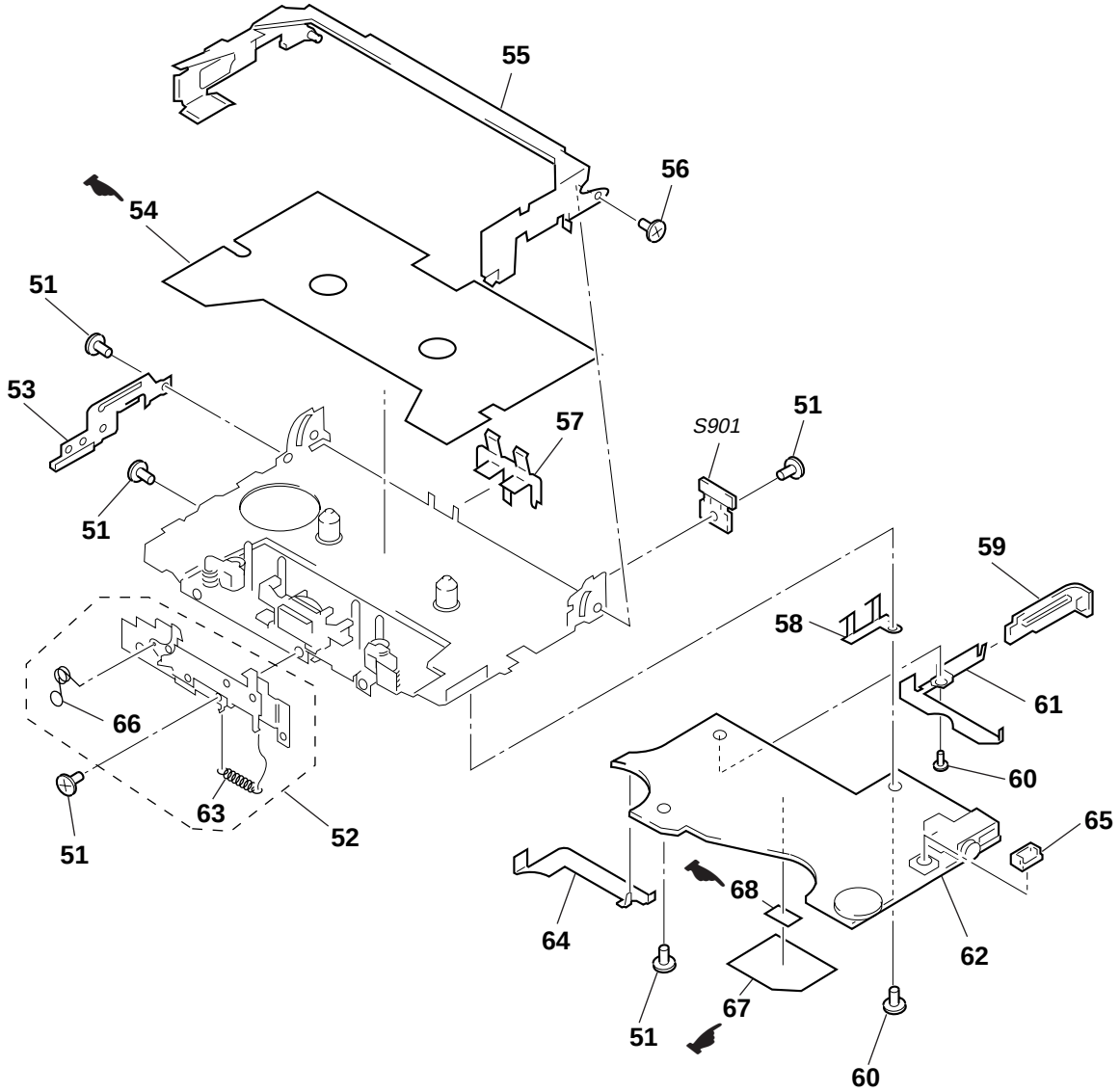


● CHANGED PARTS LIST

EXPLODED VIEWS

Page	Before Change				After Change		
	Ref. No.	Part No.	Description	Remark	Part No.	Description	Remark
20	3	3-939-590-13	SCREW (IB LOCK) • • • (BLACK)		3-704-197-93	SCREW (M1.4 x 1.8) • • • (BLACK)	
	7	3-939-590-18	SCREW (IB LOCK) • • • (SILVER,BLUE,ORANGE)		3-704-197-41	SCREW (M1.4 x 2.2) • • • (SILVER,BLUE, ORANGE)	
	7	3-939-590-19	SCREW (IB LOCK) • • • (BLACK)		3-704-197-42	SCREW (M1.4 x 2.2), LOCKING • • • (BLACK)	
	10	3-389-523-35	SCREW (IB LOCK) • • • (SILVER,BLUE,ORANGE)		3-704-197-61	SCREW (M1.4 x 4.0) • • • (SILVER,BLUE, ORANGE)	
	10	3-389-523-36	SCREW (IB LOCK) • • • (BLACK)		3-704-197-63	SCREW (M1.4 x 4.0) • • • (BLACK)	

Page	Before Change				After Change		
	Ref. No.	Part No.	Description	Remark	Part No.	Description	Remark
21	54	3-009-662-21	COVER (A), MD (WM-EX655)		3-009-662-22	COVER (A), MD (WM-EX655)	
	67		————————————		3-024-440-01	SHEET (LIGHT INTERCEPTION)	
	68		————————————		3-309-729-00	SHEET, LEAF SW • • • (BLUE, ORANGE)	
	☛ : Changed or added portion						
25		1-759-213-21	CASE, BATTERY (WM-EX655)		1-759-213-21	CASE, BATTERY	
		8-953-219-90	HEADPHONE MDR-ED132MP//K SET(WM-EX655)		8-953-219-90	HEADPHONE MDR-ED132MP//K SET	
		1-505-441-11	HEADPHONE MDR-WME633 (WM-EX668)			————————————	



• CORRECTION

EXPLODED VIEWS

Page	INCORRECT				CORRECT		
	Ref. No.	Part No.	Description	Remark	Part No.	Description	Remark
21, 23	62	A-3061-792-A	AUDIO BOARD, COMPLETE (EX668:EXCEPT FR)		A-3021-130-A	AUDIO BOARD, COMPLETE (EX668:EXCEPT FR)	
			**********			**********	

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